

INSTRUCTIONS TO WORKING GROUPS

Dr. H. Clayton Foushee, Workshop Co-Chair
NASA-Ames Research Center

INTRODUCTION

The primary objective of the NASA/MAC Workshop on Cockpit Resource Management Training is to review the progress made in this area over the last several years and to determine what we are doing well and what could be improved. This task should be viewed as a critical review of CRM Training, and the product of these working groups should be guidelines that represent the training world's collective judgement regarding optimal use of CRM training. The key to the success of this workshop is your active participation in the working group process (see the Working Group Assignments sheet to determine your specific working group).

Each of the presentations in the general session was selected to provide you with the tools you need--ideas, concepts, and approaches--to undertake your working group tasks. It is the application of these tools, coupled with your training insights, that will produce these important guidelines.

Because of the critical importance of the working group concept, we have given careful consideration to developing workable, productive objectives and approaches for the groups, and to optimizing their structure and composition. The information below was assembled to assist the working group chairmen, vice-chairmen, and individual group members in organizing their efforts in each of the assigned topic areas.

OBJECTIVES

The goals of this workshop are to address four major questions regarding CRM Training. To some extent the working group topic areas parallel these issues, but in some cases they do not. However, it is important for all of the working groups to keep these general questions in mind during their deliberations:

- o What are the essential elements of an optimal CRM Training program?
- o What are the strengths and weaknesses of current approaches to CRM Training?
- o How can CRM Training best be implemented, and what barriers exist?
- o Is CRM Training effective, do we know, and if not, how can we find out?

TOPIC AREAS

Due to the size of this workshop, you have been divided into ten working groups in six topic areas. The topic areas and general information to be considered in each are presented below. The items proposed for consideration in each topic area are merely suggestions and should not be viewed as the only appropriate issues for your deliberations.

Topic I: Curriculum Development

In this area, we are asking the working groups to generate guidelines for an optimum syllabus to be used in CRM Training. In other words, if you were a course designer asked to construct such a training program from the ground up, what would you identify as essential elements of the curriculum? There are many ways to go about this task. One useful approach would be to identify those elements that are absolutely essential to maximally effective CRM Training. You might also consider prioritizing elements of your curriculum in order to identify those elements that are most important. Examples of currently utilized subject matter in CRM courses are: incident and accident case studies, theories of leadership, theories of group performance, leader-subordinate roles, resource utilization, interpersonal behavior, the relative importance of technical and interpersonal competence, etc. You have no doubt heard many more from the presentations. It is obviously important to decide *what* to train before you can decide *how* to train it. Most of you are aware of the diversity of opinion surrounding what CRM Training really consists of, and the guidelines produced in this topic area will hopefully produce some level of consensus on the "what" of CRM Training. Critique of current approaches should be an important element of these deliberations. In summary, groups in this area are asked to determine the essential knowledge and skill requirements for CRM Training and to generate guidelines for syllabus development.

Topic II: Techniques for CRM Training

The task of working groups in this area is to produce guidelines on the "how" of CRM Training. Once a course designer has identified a syllabus of essential elements, it is important that the most effective *techniques* be identified for getting the message across and producing the desired training effect. The relative effectiveness of various training techniques is a vital area of concern. It is generally accepted that some techniques are more effective than others for achieving maximum training impact. For example, presenting categories of desirable and undesirable behavior in a classroom context may not have the same impact on a trainee as an exercise in which the trainee views examples of his or her own behavior. The goal of groups in this topic area is to produce guidelines for the appropriate balance between techniques that supply information and a common conceptual framework, such as classroom instruction, and those techniques that supply "hands-on" experience to trainees regarding their own behavior when working with others in the cockpit. Techniques that are currently being utilized in CRM Training include: classroom instruction, group exercises such as role-playing, feedback on standardized interpersonal indices, group problem solving drills, videotape feedback, and LOFT. LOFT will probably figure heavily in your deliberations, since it is perhaps the most realistic of all CRM Training techniques. Critique of current

techniques should help with your deliberations. In summary, groups in this area should identify and evaluate techniques that can be utilized to train CRM and make recommendations for training techniques that should be incorporated in a comprehensive CRM program.

Topic III: Integration into the Total Training Curriculum

It has been said that for maximal effectiveness, CRM Training should not be viewed as a one-time course. This is because the production of tangible and lasting behavior change cannot be accomplished realistically in a short (two or three day) period of time. Thus, reinforcement of CRM concepts over the course of pilots' careers has been regarded as vitally important. This requires, to some extent, that CRM Training be integrated into the total training curriculum. Areas of consideration should probably include relationships to other types of training such as: initial, transition, upgrade, and recurrent. Remedial training for those individuals who are unresponsive to standard CRM Training has also been suggested as an avenue for exploration. Instructor training and quality control are also important areas for consideration. How often should this reinforcement take place? Do regulations governing training allow for optimum implementation and integration of CRM into other aspects of aircrew training? The product of your deliberations should be a report that deals with these areas (as well as others you deem appropriate) and would provide a training manager with a strategy for implementing a comprehensive program of CRM Training into all aspects of aircrew training. In summary, the task of working groups in this topic area is to develop guidelines for the integration of CRM Training into other areas of the training curriculum.

Topic IV: The Effectiveness of CRM Training

There is a considerable amount of discussion regarding the effectiveness of CRM Training. Much of this discussion has revolved around two different types of evaluation. The first concerns the overall *effectiveness* of CRM Training. Is it working? How do we know? Should we undertake a formal research evaluation of this type of training? If so, how should we evaluate the effectiveness of the concept? The second type of evaluation question has typically been concerned with the *checking* process. An often heard question is whether or not we should apply the same standard to interpersonal competence (or those behaviors associated with effective team performance) as we now apply to technical proficiency in our checking process. Virtually all of proficiency testing is now oriented toward the maintenance of individual technical skills. This creates something of a paradox, because many now maintain that a sizable majority of performance problems relate to inadequate resource management skills. If this is true, it might seem reasonable to check for proficiency in these areas as well, but this raises a number of other questions. One problem is whether or not we have developed adequate tools for checking CRM skills. Another relates to whether we can require such standards of performance under current regulations governing training. What other barriers to the optimal usage of the CRM concept exist? It is the task of this working group to provide guidance in these areas. While not directly related to the construction or conduct of CRM Training programs, guidelines in this area will be important for developing future endeavors in this area. In summary, the task in this area is to develop recommendations and guidelines governing a determination of the effectiveness of CRM training and how

proficiency should be evaluated on related dimensions.

Topic V: CRM for Corporate and Regional Operations

It has been noted by numerous sources within the operational community that the development of a comprehensive program of CRM Training is more difficult for operators without large training departments. Traditionally, CRM Training has relied heavily on such techniques as LOFT, which utilizes high fidelity simulators that in many cases cost more than the aircraft operated by corporate and regional carriers. Moreover, the monetary and personnel resources of these operators is often limited. Despite these difficulties, the needs for CRM Training are no less great, and in many cases the problem areas are the same as they are for large operations. Much of CRM Training may not be heavily dependent upon high fidelity training devices, and a great deal of development work has occurred in the training community that might be utilized by organizations lacking the capability to develop their own programs from the ground up. The task of this working group is to consider the special needs of these types of operations. This group should consider the issues in topics #1-3 and develop recommendations for the development of CRM Training focusing on the special needs of smaller-scale operations. Most of your deliberations should focus on both curriculum development and techniques, but you should also consider the integration of CRM into a total training program. Since the task of this group is relevant to most of the other topic areas, please feel free to consult individuals in other working groups.

Topic VI: Military Applications of CRM

Most CRM Training concepts have been developed by civilian organizations. As a result, MAC, in particular, has relied heavily on some of these programs in researching their training needs. However, the military environment presents a number of unique challenges that should be addressed in CRM Training. These include the interaction of the military rank structure and the flight deck command structure which are often independent, officer-NCO relationships, tactical operations, and crew experience levels. The task of this working group is to develop recommendations that address specific military needs. You should consider the issues in topics #1-3 and develop recommendations for CRM Training that focuses on the special needs and characteristics of military operations. Much of your discussion will probably focus upon curriculum development and training techniques, but you should not neglect to consider the integration of CRM into the total training program. Since the task of this group is relevant to most of the other topic areas, please feel free to consult individuals in other working groups.

WORKING GROUP PROCEDURES

There are ten working groups in the six topic areas (two each in areas #1-4 and one each in areas #5 and #6), and each of the ten groups has an assigned chairman representing the operational community and a vice-chairman who will serve multiple functions, including resource person, technical and scientific advisor, and recording secretary. Specific operating procedures have been left to the discretion of working

group chairmen. Working group assignments were made by NASA and MAC on the basis of several considerations. In general, we have sought to represent different perspectives in all of the working groups. Since there will be a number of subject matter experts in attendance, you may want to seek the advice and counsel of individuals assigned to other groups. Please feel free to do so.

The times devoted to the working group process are meant to provide guidance only. The only requirement is that we will reconvene at 13:30 on May 8 for working group reports, and you need to be finished at that time. If for some reason your group needs more time, there is no reason why you cannot meet in the evening or earlier in the morning if you desire.

You will also notice that there are times scheduled for working group chair and vice-chair meetings. These chair meetings are for the purpose of coordination and information exchange. Since there are two working groups in most topic areas, we feel that it will be useful at various points for groups in the same area to exchange information. In addition, we are asking that one oral report in each topic area be delivered to the general session. How the oral reports are coordinated between groups in the same topic areas is left to the respective chairs' discretion. Again, the times are advisory and left to the discretion of various working group chairmen. It is, of course, possible that groups will generate widely divergent recommendations in their respective areas. In order to allow for this, we may decide to publish all of the nine working group reports in the proceedings of this workshop.

REPORT FORMAT

It is the responsibility of the vice-chairs to help the chairmen draft the written reports. The general format of these reports should contain an introduction, discussion, and recommendations. Each report should contain, to the extent that it is appropriate, the groups' opinions with respect to the four major objectives of the workshop: essential elements, strengths and weaknesses of current approaches, implementation, and effectiveness. If possible, your recommendations should be tied to the identification of essential elements and a critique of current approaches to CRM Training in your topic areas. (Topic # 4 may not be amenable to this approach.)

The length of the written reports is left largely to your discretion. However, it is difficult to envision being able to handle any of the topic areas in less than five pages, while ten or more pages will probably be difficult to generate in the time allotted. While we realize the time is limited and may preclude a full discussion of issues, there will be a further opportunity for workshop attendees to participate in the editing process prior to publication of the proceedings.